DOCUMENT RESUME

ED 218 266 SP 020 419

AUTHOR Burden, Paul R.
TITLE Teacher Development: Research Strategies.
PUB DATE Mar 82
NOTE 28p.; Paper presented at the Annual Meeting of the American Educational Research Association (New York, NY, March, 1982).

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Classroom Research; Educational Anthropology; *Educational Research; *Educational Researchers; *Educational Trends; Ethnography; Hypothesis Testing; *Intermode Differences; Professional Development; Research Design; *Research Methodology; *Teacher Education; Teachers

ABSTRACT

Topics and methodologies used by researchers of teacher development activities are examined in this paper. Selected studies in educational research are analyzed and grouped into four areas. The first research design considered is the traditional empirical-analytic, or hypothesis testing paradigm, through which studies are conducted to test the truthfulness or accuracy of predetermined hypotheses. The second research design is hypothesis generating, focusing on the meanings behind events and situations. Alternative uses of this design are presented in the areas of anthropology and ethnography. A combination of these two methods form the third research approach, which is used in many of the research reports that were reviewed. Researchers' recommendations for future directions and implications for research in teaching and learning are explored in the fourth category of research. A chart synthesizes and compares hypothesis generating and hypothesis testing research designs. A list of over 100 references is appended. (FG)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED218266

Teacher Development: Research Strategies

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Paul R. Burden

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

Dr. Paul R. Burden
Kansas State University
Dept. of Curriculum and Instruction
233 Bluemont Hall
Manhattan, Kansas 66506
Office: (913) 532-6158
Home: (913) 539-1204

Paper presented at the American Educational Research Association annual meeting, New York, March 1982

SP 020 419

Teacher Development: Research Strategies

What are the ways in which teachers change over time? What are the changes in professional knowledge, skills, behaviors, attitudes, beliefs, concerns and needs? How do teachers change in these areas? If there is a developmental sequence, what are the changes and in what order do they occur?

These questions, and others, all relate to teacher development. How are these topics examined by researchers and what research methodologies do they use to find answers to their questions? That is the focus of this paper.

Specifically, this paper will include a discussion of: (1) hypothesis testing research designs, (2) hypothesis generating research designs, (3) signals of a paradigm shift, and (4) implications for research methodology when examining teacher development.

Various terms have been used to label the hypothesis testing and hypothesis generating research designs. Kaplan (1964) and Sanders and Schwab (1979) refer to the "context of verification" and the "context of discovery." Gage (1966) and Koehler (1980) discuss improvement research and descriptive research. Eisner (1981) discusses the scientific and the artistic research methodologies. Glaser and Strauss (1967) refer to verification and generation. A number of researchers simply use the terms quantitative and qualitative research. Bulmer (1979) refers to definitive concepts and sensitizing concepts when discussing the analysis of data.

Overholt and Stallings (1976) provide a detailed examination of research goals as they distinguish between (a) the traditional educational

research hypothesis test and (b) the generation of hypotheses as a result of ethnographic accounts of how a particular situation can be explained within the framework of a more general theory. The generation of specific hypotheses of this nature, which fit ethnographic facts, could lead to a further testing of the more traditional hypothetico-deductive model. Hanson (1958), in fact, has argued that this is the main route of scientific discovery.

Researchers must carefully consider the nature of the problem and the research questions related to the problem. Since the hypothesis testing and the hypothesis generating research designs answer different types of research questions, the focus of the research determines to a large extent the nature of the design and the methodology to be employed in carrying out the study.

Hypothesis Testing Research Designs

An examination of the research literature in teacher education reveals that the traditional empirical-analytic (hypothesis testing) research paradigm is the dominant perspective. Suppes (1974) describes this as rampant empiricism in education. Popkewitz et al. (1979) reports that this paradigm can be characterized by the following: (1) the purpose of inquiry is to discover a deductive system of propositions (scientific laws) which can be used to predict and explain human behavior in a manner similar to that believed to occur in the physical sciences; (2) human behavior is assumed to have characteristics which exist independent of and external to the intentions and motives of the people involved in the action; and (3) the researcher's task is to assume a position of distance from the studied phenomena to guarantee neutrality and to control subjectivity.

The ultimate aims of hypothesis testing research designs are to make

"true" statements about the world and to produce findings which will be of direct use to educators who are attempting to improve educational practice. Studies are conducted which test the truthfulness or accuracy of predetermined hypotheses. Research designs used to test hypotheses often include experimental, quasi-experimental, correlational, and survey methods. These quantitative research approaches are used predominately in disciplines such as psychology, agriculture, genetics, and quantitative sociology, such as demography (Shulman, 1981).

Eisner (1981) considers this hypothesis testing research design to be a scientific approach to research. Formal statements are used to express quantitative relationships or to express discursive propositions. Questions for appraisal of the research would center on whether or not the conclusions are supported by evidence and whether the methods were biased. The research would focus on behavior, and generalizations could be made from the randomized sample. Eisner states that researchers using this scientific approach are interested in prediction and often use a single research strategy. The main purpose of this scientific research would be testing predetermined hypotheses in an attempt to make true statements about the world.

When comparing quantitative and qualitative methodologies, Patton (1975) asserted that different kinds of problems require different types of research methodologies. He noted that quantitative methodologies assume the possibility, desirability, and even necessity of applying some underlying standard of measurement to social phenomenon. Patton noted that quantitative methodologies used in the traditional scientific paradigm include experimental designs which analyze components of a problem. He stated that experimental designs by their nature usually focus on some narrowly defined set of variables,

at least one of which is the treatment. Heavy emphasis is placed on reliability. Quantitative research methodologies allow the researcher to be objective, with a focus on generalizations drawn from the sample.

Campbell and Stanley (1963) consider the scientific empirical research design as the only available route to cumulative progress. The classical experimental and quasi-experimental research designs which they describe dominate educational research.

Popkewitz et al. (1979) review teacher education research in three areas where the dominant research design was used.

Romberg (1978) points out that we have hardly scratched the surface in inventing ways that mathematical theory and quantitative measures can contribute to a more complete understanding of complex social interactions. The relatively simplistic quantitative methodologies that characterize so much of the literature on field-based experiences, for instance, are not representative of the latest developments in quantitative methods. Romberg and Fox (1976) provide several examples of the employment of more sophisticated quantitative analyses (e.g., time-series analysis) that offer much potential for illuminating the lived reality of field-based teacher education programs.

Despite the extensive use of empirical methodological approaches, Schalock (1980) notes a growing uneasiness with the traditional empirical research design by those conducting research on teaching or on the effects of schooling (Shulman & Lanier, 1977; Fisher & Berliner, 1977; Berliner, 1978). Schalock (1980) also discusses a growing awareness of: (1) the limitations of looking for treatment effects of single variables within school settings, even when these "variables" are conceived as broadly as

teacher effects, (2) the limitations inherent in looking at single outcome or dependent measures in complex systems, and (3) the limitations of looking at only teacher or student behaviors.

Hypothesis Generating Research Designs

The ultimate aim of hypothesis generating research designs is to seek meaning and to generate hypotheses.

Eisner (1981) considers the hypothesis generating research design to be an artistic approach to research. The ultimate aim of this research is the creation of and illumination of meaning. A variety of research methods and reporting forms would be employed because knowing takes on a variety of forms. This research would focus on the experience of the individual in the study and the intent is to locate the general patterns in the particular. In this type of research, Eisner suggests that there are no canons for sampling or reliability.

Patton (1975) discusses an alternative to the traditional empirical research design. This alternative (hypothesis generating) research paradigm stresses understanding that focuses on the meaning of human behavior, the context of social interaction, an emphatic understanding of subjective states, and the connection between subjective states and behavior (Patton, 1975, p. 7). As compared to the traditional scientific paradigm, the alternative hypothesis generating research paradigm focuses more on validity and takes a holistic research approach (Patton, 1975). Subjectivity in the alternative paradigm "allows the researcher to 'get close to the data,' thereby developing the analytical, conceptual, categorical components from the data itself -- rather than from preconceived, rigid, structured, and highly quantified techniques that pigeonhole the empirical social world into the operational definitions

that the researcher has constructed" (Filstead, 1970, p. 6).

The hypothesis generating research design assumes that the observer cannot fully understand human behavior without empathy and sympathetic introspection derived from personal encounters. Understanding comes from trying to put oneself in the other person's shoes, from trying to discern how others think, act, and feel (Wolcott, 1975). Lofland (1971) provides some methodological suggestions in this regard. "In order to capture the participants 'in their own terms' one must learn _their_ analytic ordering of the world, _their_ categories for rendering explicable and coherent the flux of raw reality. That, indeed, is the first principle of qualitative analysis" (Lofland, 1971, p. 7).

The alternative paradigm relies on field techniques from an anthropological rather than natural science tradition; techniques such as participant observation, in-depth interviewing, detailed description, and qualitative field notes (Patton, 1975). This alternative methodological research paradigm, therefore, draws on work in qualitative methodology, phenomenology, symbolic interactionism, _Gestalt_ psychology, ethnomethodology, and the general notion or doctrine of verstehen (understanding) (Patton, 1975, p. 7).

Descriptions of ethnographic methodologies are available in the following sources: Adams and Priess, 1960; Bruyn, 1966; Filstead, 1970; Glaser and Strauss, 1967; McCall and Simmons, 1969; Naroll and Cohen, 1970; Scott, 1965; Schutzman and Strauss, 1974; and Wolcott, 1967, 1971, 1975. Comprehensive annoted bibliographies of teaching and research in the fields of anthropology and education are provided by Rosenstiel (1977) and Kaplan, _et al_. (1980). Similar bibliographies are available (Burnett, _et al_., 1974; Linquist, 1971; O'Leary, 1970; Storey, 1971; Wolcott, 1972). A wealth of

ethnographic description is provided by Spindler (1974).

Magoon (1977) reviews a number of educational studies which use "thick description" or constructive (theory generating) ethnographic techniques. These approaches are described in the various studies as being qualitative, phenomenological, Lewinian, microethnographic, ethnomethodological, or sociolinguistic (Magoon, 1977, p. 667-668).

Ethnographic research seeks an extensive and interpretive effort at explaining the complexity (Magoon, 1977, p. 652). Essentially ethnography is a narrative study of a bounded system in its cultural context (Shavelson & Stern, 1981, p. 459). A case study is a narrative account of an object of social inquiry such as a classroom, a school system or any other bounded system (cf. Stake, 1978). Sanders (1981) describes noteworthy characteristics of case studies and cites others who have provided similar analyses (Guba, 1978; Stake, 1980; Wolcott, 1980).

The strengths of ethnographic studies are claimed to lie in their heavy emphasis on validity (Rist, 1977). The emphasis is on construct validity -- the meaning of events or situations to participants -- rather than traditional predictive or concurrent validity. Magoon (1977) discusses the issue of construct validity when he reviews a number of educational ethnographic studies.

Partlett and Hamilton (1975) make a strong theoretical case for "illuminative evaluation" describable as a social anthropological approach to evaluation. This contrasts with traditional methods (i.e, experimental and quasi-experimental designs) and seems to them to represent a Kuhnian paradigmatic shift. (See Kuhn, 1970, and Heyl, 1975, for a discussion of paradigms).

Partlett and Hamilton (1975) indicate that the primary concern in this "illuminative" procedure is not with prediction and measurement, but with description and interpretation. In a fine review of concepts in the analysis of qualitative data, Bulmer (1979) discusses Znaniecki's (1934) procedures for generating categories from sociological data. Other discussions of the analysis of qualitative data are available (e.g., entire issue of Sociological Review, Vol. 27, No. 4, 1979).

Recently educational researchers have taken an increasing interest in anthropological ethnographic approaches to phenomena, and how this conforms to scientific theory development (Lutz & Ramsay, 1974; Overholt & Stallings, 1976). Glaser and Strauss, in The Discovery of Grounded Theory (1967), view theory as a never-ending process whereby facts are brought into consideration via such processes as ethnographies. The most important role of life histories, for instance, in theoretical work is the part they play in the exploration and generation of theory (Faraday & Plummer, 1979, p. 784).

Berliner (1978, p. 21) suggests that data analysis can be exploratory, not confirmatory and the analyst need not have pre-conceived notions about the data structures. In this kind of exploratory analysis researchers are urged to "massage" complex data such that new insights about the phenomena emerge. This approach to statistical manipulation appears to be in keeping with the exploratory, descriptive, hypothesis generating research approaches. Case studies, clinical reports, single subject research, and ethnographic research have reasonably well established rules for reporting data, though by and large these are not as restrictive as the rules governing the reporting of data derived through inferential statistics (Schalock, 1980, p. 531).

Shavelson and Stern (1981) report that research on cognitive processes

and behaviors of teachers has a characteristic set of methods which differs from the correlational and experimental studies. These alternative methods attempt to collect data on mental processes and so use more or less direct probes of teachers' thoughts and judgments. They include policy capturing, lens modeling, process tracing, stimulated recall, and case study and ethnography (Shavelson and Stern, 1981, briefly discuss each). (For discussions of one or more of these methods see Einhorn, Kleinmuntz & Kleinmuntz, 1979; Ericsson & Simon, 1980; Erickson, 1979a, 1979b; Shulman & Elstein, 1975).

The more psychologically and cognitively oriented ethnographers assume that "individuals have meaning structures that determine much of their behavior ... (and) that they seek to discover what these meaning structures are, how they develop, and how they influence behavior, in as comprehensive and objective a fashion as possible" (Wilson, 1977, p. 254). Qualitative research, then, "is predicated on the assumption that an 'inner understanding' enables the comprehension of human behavior in greater depth than is possible from the study of surface behavior, from paper and pencil tests and from standardized interviews" (Rist, 1979, p. 20).

Shavelson and Stern (1981) contend that the potential contritution of qualitative research to research on teaching is that fieldwork methods (e.g., participant observation, focused interviews) and analytic techniques (e.g., development of conceptual and categorical systems from the data themselves) have been developed by qualitative researchers and have their canons of methodological rigor just as quantitative methods do (e.g., Cohen, 1980; Erickson, 1979a, 1979b; Filstead, 1970; Wilson, 1977).

The fact that qualitative methods have their own canons of methodological rigor is often blurred by the misuse of these methods by researchers (Rist, 1980).

Erickson (1979) points out a number of limitations and potential problems with ethnographies, some which arise when the methodological canons become blurred: (a) timing -- by the time the ethnography is written up, it is too late to use in the short run; (b) validity -- ethnographers may not have been intensive enough, or they may be inept; the informants may not be articulate, or they may have concealed information; (c) superficiality -- description stopped at surface appearances; and (d) evidentiary adequacy -- the level of inference about overall trends may not be supported by the data. Limitations also include the demands of journals for concise reporting of the results of ethnographies and case studies, making it virtually impossible for the reader to evaluate the study (Shavelson & Stern, 1981, p. 460).

In calling for more empirical discussion of methods and methodology in educational anthropology, Sindell (1969, p. 602-603) reports that too many authors devote scant attention to the methods they have utilized in obtaining and analyzing the data. Too many publications do not include texts of interviews or questionnaires administered and do not specify precisely where, when, and under what conditions the research was done.

Wilson (1977) discusses aspects of ethnographic techniques including entry and establishment of researcher's role, data collection procedures, objectivity, and analysis of data and the problems and difficulties inherent in each.

Wolcott (1975) provides a similar critical analysis of ethnographic approaches to research when examining the appropriateness of the problem, the appropriateness of the ethnographer, the appropriateness of the research "climate," and the appropriateness of expectations for the completed study. Wolcott finds that one problem is that researchers actually look at too

small a part of the system under examination and violate the commitment to be "holistic" (p. 123).

Signals of a Paradigm Shift

It is clear that the dominant approach to research in education is the traditional empirical-analytic hypothesis-testing research paradigm. Despite this dominance, a number of researchers are calling for the use of a combination of the hypothesis testing and the hypothesis generating research designs when attempting to answer their research questions. This signals a shift from the traditional scientific paradigm to a use of alternative research designs.

Sanders and Schwab (1979) report that researchers have skipped over the basic step of investigating -- in the "context of discovery" (Kaplan, 1964) -- the facts of the phenomena we investigate, and have prematurely focused our attention in the "context of verification." Increasingly researchers are calling for corrective action: for detailed, systematic, careful observation of the facts of educating through naturalistic observation, participant observation, and case studies of education in natural settings. (See for example, Wolcott, 1970; entire issue of Anthropology and Education Quarterly, Vol. 8, No. 2, 1977; Cicourel, 1975; MacDonald & Walker, 1975). Other researchers are advocating more holistic, naturalistic approaches to explanation of educational phenomena through the use of single case research, "transforming experiments," and "illuminatory evaluation" (Guba, 1978; Frey, 1978; Hamilton, 1977; Varenhorst, 1978).

Zeichner (1980) reports that there is a growing tendency to call for increased application of socio-anthropological perspectives to research (e.g., Lutz & Ramsey, 1974; Wilson, 1977). Wilson (1977, p. 263) argues

that educational research would be considerably enriched as qualitative and quantitative researchers learn to integrate their approaches. It has been argued that the creative combination of qualitative (socio-anthropological) and quantitative (empirical-analytic) approaches to research go beyond the strengths of either approach alone in illuminating social reality (e.g., Campbell, 1978; Cronbach, 1975).

Eisner (1981) suggests that the field of education needs to avoid methodological monoism and that both qualitative and quantitative methodologies should be used. He suggests that interest in "qualitative research" is symptomatic of the uneasiness that many in the research community have felt with the methods of inquiry promulgated by conventional research tradition.

In reviewing research methods, Pelto (1970, p. 145) concludes that "examining cultural behavior with a variety of different approaches greatly enhances the credibility of research results." Clustered research and development groups have been suggested to chart new paths and new programs for human development (Sprinthall, 1980, p. 285). Using a mixture of methods and a variety of data sources has been described by Denzin (1970) as "multiple triangulation," a term borrowed from celestial navigation.

Theoretical and conceptual roots for the development of an alternative research paradigm can be identified in the sociology of educational knowledge (see Brown, 1973, and Young, 1971).

Cicourel et al. (1974) argues that "disciplines like the educational research and measurement community must come to realize that they view things from a particular vantage point, that this cannot be helped, but that it must be acknowledged and opened to both examination and other viewpoints."

Cicourel echoes many others (Hudson, 1972; Messick, 1975; Kaplan, 1964; Scriven, 1972) that the measurement field has a particular constructed view of what is right and what is wrong in educational research, and that this position needs rethinking.

Magoon (1977) argues persuasively that predictions about precise individual behavior resulting from the use of the empirical, hypothesis testing research design are one facet of explanation, but patterned explanations (coming from a hypothesis generating research design) are equally legitimate and useful and may be a better scientific goal approximation for many purposes.

If research in teacher education is to be diverse and multi-faceted, the methodology needed must be equally diverse and multi-faceted (Schalock, 1980, p. 519). Schalock (1980, p. 529) suggests that research in teacher education at this time needs to be as much concerned with construct development and delineation as it is with verification of empirical relationships.

Wright Mills (1951, p. 50) observes that the dominance of statistical (hypothesis testing) methodology has led to a "methodological inhibition" that he called "abstracted empiricism." Patton (1975) contends that the dominance of quantitative methodology has acted to severely limit the kinds of questions that are asked and the types of problems that are studied. Different kinds of problems require different types of research methodology.

When considering the use of a variety of research designs, Shulman (1981, p. 12) says we must first understand our research problem, and decide what questions we are asking, then select the mode of disciplined inquiry most appropriate to those questions. The hypothesis generating and the hypothesis testing research designs ask different questions or have different

ways of asking educational research questions. The best research programs will reflect intelligent use of a diversity of research methods applied to their appropriate research questions. Taken together, these approaches build a "methodological mosaic" which can lead to fuller understanding (Shulman, 1981).

Implications for Research Methodology in Teacher Development

Researchers in the area of teacher development also have been calling for a shift from the scientific, hypothesis testing research paradigm to use of alternative designs. Signals of a paradigm shift in research on teaching seem to be confirmed by Doyle's (1978) paper on alternative paradigms for research on teacher effectiveness, interest in "teaching as decision making" (Shulman & Lanier, 1977), and in teacher's thinking (Clark & Yinger, 1979), and Berliner's (1978) call for clinical studies of classroom teaching and learning.

Doyle (1980, p. 138) also reports that specialists from various sectors within education and psychology and from several other disciplines -- sociology, anthropology, ethnology, sociolinguistics, and phenomenology -- have been attracted to the classroom. As a result, new set of questions and a new array of research methods have infused the field (see Hymes, 1977; Mehan & Wood, 1975; Wilson, 1977; Woods & Hammersley, 1977) and proposals for basic reform in research on teaching have begun to appear (Bennett, 1978; Doyle, 1978; Power, 1973; Winne & Marx, 1977).

In reviewing researchers' recommendations for future directions for research on teaching and research on learning, Koehler (1979) reports that a model for conducting teaching/learning research emerges. In terms of research on teacher development, the report is consistent with the suggestions

of a paradigm shift from the scientific, hypothesis testing design to many research designs including the alternative, hypothesis generating design. The model Koehler reports includes five elements: (1) descriptive classroom research, (2) small sample, in-depth, longitudinal, naturalistic observations, (3) inter-disciplinary research, (4) studying the system as it exists today, and (5) teacher involvement in research.

In reviewing anthropological studies in education and those which use anthropological methods, Sindell (1969) identifies three principal foci of research and suggests that the most promising approach would be the study of individually oriented networks coupled with lengthy fieldwork, micro-ethnographic methodology, interviews, and time sampling.

In a review of teacher education research methodology, Schalock (1980, p. 529) predicts that descriptive or hypothesis generating research designs will dominate over hypothesis testing designs in the immediate future since research in teacher education needs to be much more concerned with construct development and delineation as compared to the verification of empirical relationships. Experimental designs will still be needed and employed, but only after constructs are reasonably well delineated and hypotheses reasonably well formulated. Schalock further suggests that in teacher education research there will be increased use of longitudinal designs coupled with a "case history" or "extreme case" or "clinical" or "ethnographic" orientation to data collection analysis.

Overholt and Stallings' (1976) report on research designs which generate or test hypotheses should be considered in relation to research on teacher development. Objectives differ for the two research designs. Research objectives need to be developed that are appropriate to the state of knowledge

existing about the phenomena being studied (Sanders, 1981). Guba and Clark (1967) comment on this issue in the following way:

> When a researcher first approaches a new area about which almost nothing is known, all that he can do is to develop phenomenological descriptions. He may describe what he sees in terms of certain variables (the beginnings of a conceptual framework) and he may make efforts to determine their amounts. Such qualitative and quantitative descriptions will be termed depicting, the first category of the research taxonomy. Once description has occurred in some detail, then it is possible to relate the various depictions qualitatively, by comparison and contrast, or quantitatively through correlational and related techniques. When certain relationships have been established, a next step is to account for them through the development of conceptual frameworks in terms of which the relationships may be predicted, understood, and controlled. This process will be termed conceptualization, and may be carried out either analytically or synthetically. Finally, the conceptualizations will yield certain hypotheses which can be confirmed or rejected for the phenomenological world; this process will be termed testing (Guba & Clark, 1967, p. 18-19).

In terms of teacher development, researchers may be interested in changes in professional knowledge, skills, behaviors, attitudes, beliefs, concerns, and needs. Hypotheses about teachers' development could be proposed as a result of ethnographic research designs and a general theory of teacher development might be proposed. Then, based on the initial hypotheses, a testing of such hypotheses could be conducted using the more traditional scientific research design.

The investigation of teacher career development, for example, has generally followed this model. Some researchers speculate about stages of teacher career development (for example, Katz, 1972 and Gregorc, 1973) and in doing so provide some theoretical categories to examine in research studies. Some of these categories were researched by qualitative measures and stages of teacher development emerged (e.g., Fuller, 1967, 1969; Fuller & Bown, 1975; Fuller, Parsons & Watkins, 1975). Other studies were conducted to examine how teachers change over the entire length of their careers

(Burden, 1979, 1980; Newman, 1978; Peterson, 1978). Burden's (1979, 1980) interview study obtained experienced teachers' perceptions of their personal and professional changes for their entire careers. Three stages of teacher career development were documented with changes in (1) professional knowledge, skills, and behaviors, (2) attitudes and outlooks, and (3) job events. This qualitative study actually employs a hypothesis generating research design. The information and categories reported actually lay the groundwork for developing a theory of teacher career development. Theoretical categories were depicted (see Guba & Clark, 1967, pp. 18-19). Additional qualitative, hypothesis generating research designs should help relate these concepts to a developing theory which could be conceptualized as studies are conducted. Testing could be done with more empirical research designs.

When researching teacher education and teacher development, Schalock (1980) suggests that attention also needs to be focused on the intentions of teacher and students (Fenstermacher, 1978), the decision making of teachers and students (Shulman and Elstein, 1975; Shavelson, 1976), and the context in which behavior, intentions, and decisions occur (Dreeban, 1978). Schalock (1980, p. 529) further suggests that there should be multiple measures of any construct under investigation. This is consistent with the Campbell and Fiske (1959) plea for the "triangulation" of measures of constructs that are not yet well defined.

Conclusion

Researchers interested in teacher development may examine changes in professional knowledge, skills, behaviors, attitudes, beliefs, concerns, and needs. We must first understand our problem, decide what questions we are asking, and then select the mode of disciplined inquiry most appropriate to

those questions. The traditional, scientific, hypothesis testing research design and the alternative, hypothesis generating research design help answer different types of questions and serve different purposes. In terms of teacher development, the use of hypothesis generating research designs can lead to the establishment of a general theory of teacher development while further testing could be conducted with hypothesis testing research design.

APPENDIX A

COMPARISON OF HYPOTHESIS GENERATING AND HYPOTHESIS TESTING RESEARCH DESIGNS

	HYPOTHESIS GENERATING RESEARCH DESIGN	HYPOTHESIS TESTING RESEARCH DESIGN
PROBLEM SOURCE	situation where meaning is sought	theories to be tested hypotheses to be verified
METHODS OF INQUIRY	participant observation interviews case histories other ethnographic techniques	experimental quasi-experimental correlational survey
NATURE OF ANALYSIS	holistic examination	component examination
DISTANCE FROM DATA	close to data subjective view	at a distance from data objective view
NATURE OF PREDICTION AND GENERALIZATION	locate the general in the particular seeks uniqueness seeks explication meaning is situational	move from the particular to the general seeks generalization wants to predict meaning is universal
RELIABILITY AND VALIDITY FOCUS	emphasis on validity (meaning)	emphasis on reliability (replicability and consistency)
SUBJECT MATTER	specific cases, situations, or relationships	large samples or populations
REPORTING FORMS	a variety of reporting forms used, no standard reporting form	standardized reporting forms
BASIS OF KNOWING	methodological pluralism desired	methodological monoism
POINTS OF FOCUS	focuses more on the process, on the experience	focuses more on behavior and outcomes
ULTIMATE AIMS	seeks the generation of hypotheses wants the creation of meaning	seeks to test hypotheses wants to make true statements about the world

Note: This chart is a synthesis of the ideas proposed by Eisner (1981), Patton (1975), and Spencer and Dale (1979).

References

Adams, R., & Preiss, J. (Eds.). Human organization research. Homewood, Ill.: Dorsey Press, 1960.

Anthropology and Education Quarterly, 1977, 8(2), Special issue on "Exploring Qualitative/Quantitative Research Methodologies in Education."

Bennett, S.N. Recent research on teaching: A dream, a belief, and a model. British Journal of Educational Psychology, 1978, 48, 127-147.

Berliner, D.C. Clinical studies of classrooms in teaching and learning. Paper presented at the annual meeting of the American Educational Research Association, Toronto, Canada, March 1978.

Brown, R. Knowledge, education, and cultural change. London: Tavistock, 1973.

Bruyn, S. Human perspectives in sociology. Englewood Cliffs, N.J.: Prentice-Hall, 1966.

Bulmer, M. Concepts in the analysis of qualitative data. Sociological Review, 1979, 27(4), 651-677.

Burden, P.R. Teachers' perceptions of the characteristics and influences on their personal and professional development. Doctoral dissertation, The Ohio State University, 1979. Dissertation Abstracts International, 1980, 40, 5404A.

Burden, P.R. Teachers' perceptions of the characteristics and influences on their personal and professional development. Manhattan, Kansas: ERIC Document Reproduction Service, ED 198 087, 1980.

Burnett, J.H.; Gordon, S.; & Gormley, C.J. Anthropology and education: An annoted bibliographic guide. New Haven, Conn.: HRAF Press for the Council on Anthropology and Education, 1974.

Campbell, D. Qualitative knowing in action research. In M. Brenner, P. Marsh, & M. Brenner (Eds.), The social contexts of method. London: Croom Helm, 1978.

Campbell, D.T., & Fiske, W. Convergent and discriminate validations by multitrait-multimethod matrix. Psychological Bulletin, 1959, 56, 81-105.

Campbell, D.T., & Stanley, J.C. Experimental and quasi-experimental designs for research. Chicago: Rand McNally College Publishing Co., 1963.

Cicourel, A.V. Organizational processes in educational research: Suggestions for basic field research. Report to the National Institute of Education, April, 1975.

Cicourel, A.V.; Jennings, K.H.; Jennings, S.H.M.; Leiter, K.C.W.; MacKay, R.; Mehan, H.; & Roth, D.R. Language use and school performance. New York: Academic Press, 1974.

Clark, C.M., & Yinger, R.J. Teachers' thinking. In P.L. Peterson and H.J. Walberg (Eds.), Research on teaching: Concepts, findings, and implications. Berkeley, Calif.: McCutchan Publishing Co., 1979.

Cohen, M. Policy implications of an ecological theory of teaching: Toward an understanding of outcomes. Paper presented at the annual meeting of the American Educational Research Association, Boston, April 1980.

Cronbach, L. Beyond the two disciplines of scientific psychology. American Psychologist, 1975, 30, 116-127.

Denzin, N.K. The research act in sociology. London: Butterworth, 1970.

Doyle, W. Paradigms for research on teacher effectiveness. In L.S. Shulman (Ed.), Review of research in education, 8. Itaska, Ill.: Peacock, 1978.

Doyle, W. Classroom effects. Theory Into Practice, 1979, 18(3), 138-144.

Dreeban, R. The collective character of instruction. Invited address presented at the annual meeting of the American Educational Research Association, Toronto, Canada, March 1978.

Einhorn, H.J.; Kleinmuntz, D.M.; & Kleinmutz, B. Linear regression and process-tracing models of judgment. Psychological Review, 1979, 86, 465-485.

Eisner, E.W. On the differences between scientific and artistic approaches to qualitative research. Educational Researcher, 1981, 10(4), 5-9.

Erickson, F. "Mere" Ethnography: Some problems in its use in educational practice (Occasional Paper No. 15). East Lansing: Institute for Research on Teaching, Michigan State University, March 1979. (a)

Erickson, F. On standards of descriptive validity in studies of classroom activity (Occasional Paper No. 16). East Lansing: Institute for Research on Teaching, Michigan State University, March 1979. (b)

Ericsson, K.A., & Simon, H.A. Verbal reports as data. Psychological Review, 1980, 87, 215-251.

Faraday, A., & Plummer, K. Doing life histories. Sociological Review, 1979, 27(4), 773-798.

Fenstermacher, G. A philosophical consideration of research on teacher effectiveness. In L.S. Shulman (Ed.), Review of research in education, 8. Itaska, Ill.: Peacock, 1978.

Filstead, W. Qualitative methodology. Chicago: Markham, 1970.

Fisher, C.W.,& Berliner, D.C. Quasi-clinical inquiry in research on classroom teaching and learning, Technical Report VI-2, Beginning Teacher Evaluation Study. San Francisco: Far West Laboratory for Educational Research and Development, 1977.

Frey, D. Science and the single case in counseling research. The Personnel and Guidance Journal, 1978, 56, 263-268.

Fuller, F.F. Intensive individualization of teacher preparation. In Mental health and teacher education, the Forty-sixth Yearbook of the Association for Student Teaching. Washington, D.C.: Association for Student Teaching, 1967.

Fuller, F.F. Concerns of teachers: A developmental conceptualization. American Educational Research Journal, 1969, 6, 207-226.

Fuller, F.F., & Bown, O.H. Becoming a teacher. In Teacher education, the Seventy-fourth Yearbook of the National Society for the Study of Education, pt. 2. Chicago: University of Chicago Press, 1975.

Fuller, F.F.; Parsons, J.S.; & Watkins, J.E. Concerns of teachers: Research and conceptualization. Austin, Texas: Research and Development Center for Teacher Education, University of Texas, 1973.

Gage, N.L. Research on cognitive aspects of teaching. In The way teaching is. Washington, D.C.: ASCD and NEA Center for the Study of Instruction, 1966.

Glaser, B.G., & Strauss, A.L. The discovery of grounded theory. Chicago: Aldine, 1967.

Gregorc, A.F. Developing plans for professional growth. The National Association for Secondary School Principals Bulletin, 1973, 57(377), 1-8.

Guba, E.G. Toward a methodology of naturalistic inquiry in educational evaluation. CSE Monograph Series in Education: 8. Los Angeles: Center for the Study of Evaluation, University of California, 1978.

Guba, E.G., & Clark, D.L. Writing a research or development proposal. Columbus, Ohio: The Ohio State University, 1967. (mimeo)

Hamilton, D. et al., (Eds.). Beyond the numbers game: A reader in educational evaluation. New York: Macmillan, 1977.

Hanson, N. Patterns of discovery. Cambridge: Cambridge University Press, 1958.

Heyl, J. Paradigms in social science. Society, 1975, 12(5), 61-67.

Hudson, L. The cult of the fact. New York: Harper & Row, 1972.

Hymes, D.H. Qualitative/quantitative research methodologies in education: A linguistic perspective. Anthropology & Education Quarterly, 1977, 8, 165-176.

Kaplan, A. The conduct of inquiry. Scranton: Chandler, 1964.

Kaplan, M.H.; Galbreath, D.; & Vargas, C. Ethnographic and qualitative methods in educational research: A selected annoted bibliography. Charlottesville, Va.: The Mid-Atlantic Center for Community Education, School of Education, University of Virginia, 1980.

Katz, L.G. Developmental stages of preschool teachers. Elementary School Journal, 1972, 73, 50-54.

Koehler, V. The future of teacher preparation and research on teaching. Theory Into Practice, 1979, 18(3), 200-204.

Koehler, V. Methodology for research on teacher training. In G.E. Hall; S.M. Hord; and G. Brown (Eds.), Exploring issues in teacher education: Questions for future research. Austin, Texas: Research and Development Center for Teacher Education, University of Texas at Austin, 1980.

Kuhn, T.S. The structure of scientific revolutions (2nd ed., enlarged). Chicago: University of Chicago Press, 1970.

Lindquist, H.M. A world bibliography of anthropology and education with annotations. In Murray Wax, et al. (Eds.), Anthropological perspectives on education. New York: Basic Books, 1971.

Lofland, J. Analyzing social settings. Belmont, Calif.: Wadsworth, 1971.

Lutz, F.W., & Ramsey, M.A. The use of anthropological field methods in education. Educational Researcher, 1974, 3(10), 5-9.

MacDonald, B., & Walker, R. Case-study and the social philosophy of educational research. Cambridge Journal of Education, 1975, 5(1), 2-11.

Magoon, A.J. Constructivist approaches in educational research. Review of Educational Research, 1977, 47(4), 651-693.

McCall, G., & Simmons, J. Issues in participant observations. Reading, Mass.: Addison-Wesley, 1969.

Mehan, H., & Wood, H. The reality of ethnomethodology. New York: Wiley, 1975.

Messick, S. The standard problem. American Psychologist, 1975, 30, 955-966.

Mills, C.W. The sociological imagination. New York: Grove Press, 1961.

Naroll, R., & Cohen, R. Handbook of method in cultural anthropology. Garden City, N.Y.: Natural History Press, 1970.

Newman, K.K. Middle-aged experienced teachers' perceptions of their career development. Doctoral dissertation, The Ohio State University, 1978. Dissertation Abstracts International, 1979, 39, 4885A.

O'Leary, T.J. Ethnographic bibliographies. In R. Naroll & R. Cohen (Eds.), A handbook of cultural anthropology. New York: Natural History Press, 1970.

Overholt, G.E., & Stallings, W.M. Ethnographic and experimental hypotheses in educational research. Educational Researcher, 1976, 5(8), 12-14.

Partlett, M., & Hamilton, D. Evaluation as illumination. In G.V. Glass (Ed.), Evaluation studies. Beverly Hills: Sage Publications, 1976.

Patton, M.Q. Alternative evaluation research paradigm. Grand Forks, N.D.: University of North Dakota Press, 1975.

Pelto, P.J. Anthropological research: The structure of inquiry. New York: Harper & Row, 1970.

Peterson, A.R. Career patterns of secondary school teachers: An exploratory interview study of retired teachers. Doctoral dissertation, The Ohio State Unicersity, 1978. Dissertation Abstracts International, 1979; 39, 4888A.

Popkewitz, T.S.; Tabachnick, B.R.; & Zeichner, K.M. Dulling the senses: Research in teacher education. Journal of Teacher Education, 1979, 30(5), 52-60.

Power, C. A critical review of science classroom interaction studies. Studies in Science Education, 1977, 4, 1-30.

Rist, R.C. On the relations between educational research paradigms. Anthropology and Education Quarterly, 1977, 8(2).

Rist, R.C. On the means of knowing: Qualitative research in education. New York University Education Quarterly, 1979, 10, 17-21.

Rist, R.C. Blitzkrieg ethnography: On the transformation of a method into a movement. Educational Researcher, 1980, 9(2), 8-10.

Romberg, T. The field-bases of quantitative procedures for the study of schooling. Paper presented at the conference on The Study of Schooling: Field-based Methodologies in Educational Research. Racine, Wisc., Nov. 1978.

Romberg, T., & Fox, G.T. Problems in analyzing dynamic events within teacher education. In G.T. Fox et al. (Eds.), The 1975 Corps Member Training Institute (CMTI) impact study (Technical Report No. 20). Madison, Wisc.: U.S. Office of Education/Teacher Corps, 1976.

Rosenstiel, A. Education and anthropology: An annoted bibliography. New York: Garland Publishers, 1977.

Sanders, D.P., & Schwab, M. Science and the educating process. Theory Into Practice, 1979, 18(5), 349-356.

Sanders, J.R. Case study methodology: A critique. Paper presented at the Second Annual Minnesota Evaluation Conference on "Case Study Methodology in Educational Evaluation," University of Minnesota, May 15, 1981.

Schalock, H.D. Eating humble pie: Notes on methodology in teacher education research. In G.E. Hall; S.M. Hord; and G. Brown (Eds.), Exploring issues in teacher education: Questions for future research. Austin, Texas: Research and Development Center for Teacher Education, University of Texas at Austin, 1980.

Schatzman, L., & Strauss, A. Field research. New York: Prentice Hall, 1974.

Scott, R. Fieldwork in organizations. In J. March (Ed.), Handbook of organizations. Chicago: Rand McNally, 1965.

Scriven, M. Objectivity and subjectivity in educational research. In L.G. Thomas (Ed.), Philosophical redirection of educational research. Chicago: National Society for the Study of Education, 1972.

Shavelson, R.J. Teacher's decision making. In N.L. Gage (Ed.), The psychology of teaching methods. Chicago: National Society for the Study of Education, 1976.

Shavelson, R.J., & Stern, P. Research on teachers' pedagogical thoughts, judgments, decisions, and behavior. Review of Educational Research, 1981, 51(4), 455-498.

Shulman, L.S. Disciplines of inquiry in education: An overview. Educational Researcher, 1981, 10(6), 5-12, 23.

Shulman, L.S., & Elstein, A.S. Studies in problem solving, judgment, and decision making: Implications for educational research. In F.M. Kerlinger (Ed.). Review of research in education, 3. Itaska, Ill.: Peacock, 1975.

Shulman, L.S., & Lanier, J.E. The institute for research on teaching: An overview. Journal of Teacher Education, 1977, 28, 44-49.

Sindell, P.S. Anthropological approaches to the study of education. Review of Educational Research, 1969, 39(5), 593-605.

Sociological Review, 1979, 27(4).

Spencer, L., & Dale, A. Integration and regulation in organizations: A contextual approach. Sociological Review, 1979, 27(4), 679-702.

Spindler, G.D. Education and cultural process: Toward an anthropology of education. New York: Holt, Rinehart and Winston, 1974.

Sprinthall, N.A. Adults as learners: A developmental perspective. In G.E. Hall; S.M. Hord; and G. Brown (Eds.), Exploring issues in teacher education: Questions for future research. Austin, Texas: Research and Development Center for Teacher Education, University of Texas at Austin, 1980.

Stake, R.E. The case study method in social inquiry. Educational Researcher, 1978, 7(2), 5-8.

Stake, R.E. Recommendations for those considering the support of naturalistic case-study research. Champaign-Urbana, Ill.: University of Illinois Center for Instructional Research and Curriculum Evaluation, June 1980 (mimeo).

Storey, E. Anthropology and education: A general bibliography. Georgia: Georgia State University, 1971.

Suppes, P. The place of theory in educational research. Educational Researcher, 1974, 3(6), 3-10.

Varenhorst, B.B. In search of the illusive view of man. Educational Researcher, 1978, 7(9), 3-8.

Wilson, S. The use of ethnographic techniques in educational research. Review of Educational Research, 1977, 47(1), 245-265.

Winne, P.H., & Marx, R.W. Reconceptualizing research on teaching. Journal of Educational Psychology, 1977, 69, 668-678.

Wolcott, H.F. Anthropology and education. Review of Educational Research, 1967, 37, 82-95.

Wolcott, H.F. An ethnographic approach to the study of school administration. Human Organization, 1970, 29(2), 115-122.

Wolcott, H.F. Handle with care: Necessary precautions in the anthropology of schools. In M.L. Wax et al. (Eds.), Anthropological perspectives on education. New York: Basic Books, 1971.

Wolcott, H.F. Field study methods for educational researchers: A bibliography. Monticello, Illinois: Council of Planning Librarians, 1972.

Wolcott, H.F. Criteria for an ethnographic approach to research in schools. Human Organization, 1975, 34(2), 111-127.

Wolcott, H.F. Ethnographic research in education. Cassette tape in R.M. Jaeger (Ed.), Alternative methodologies in educational research. Washington, D.C.: American Educational Research Association Tape Series, 1980.

Woods, P., & Hammersley, M. (Eds.) School experience. New York: St. Martin's Press, 1977.

Young, M. Knowledge and control: New directions for the sociology of knowledge. London: Collier-MacMillan, 1971.

Zeichner, K.M. Myths and realities: Field-based experiences in preservice teacher education. Journal of Teacher Education, 1980, 31(6), 45-55.

Znaniecki, F. The method of sociology. London: Farrar and Rinehart, 1934.